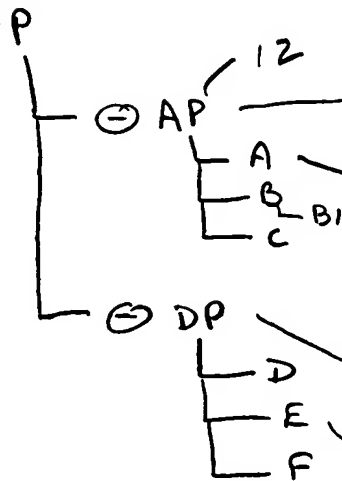


LOGICAL HIERARCHY



PHYSICAL HIERARCHY & FLOOR PLAN

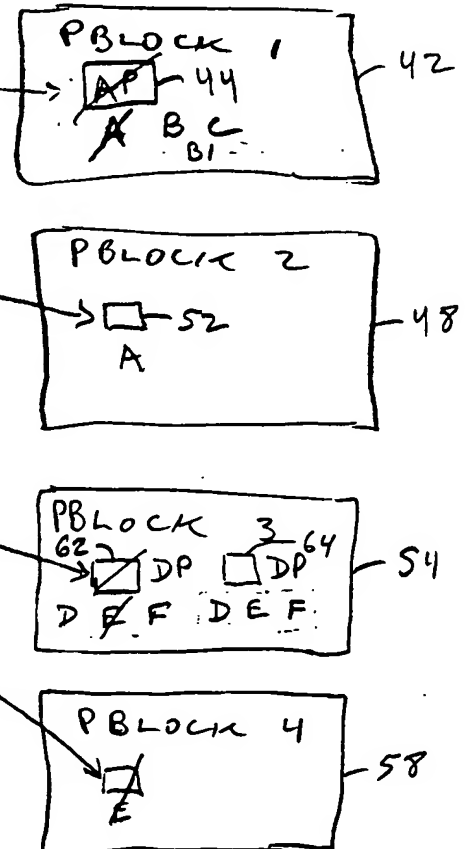


FIG. 5

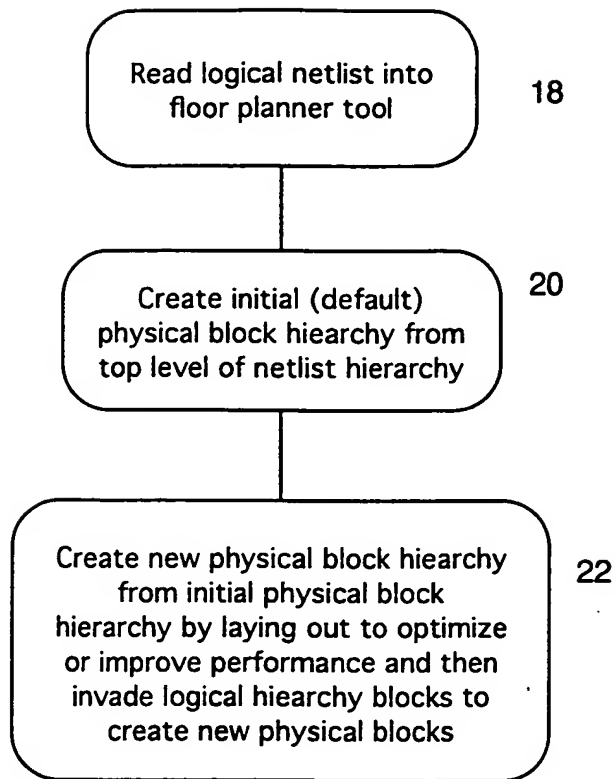


FIG. 2

PROCESS TO CREATE A NEW FLOORPLAN USING IMPROVED FLOOR PLANNER

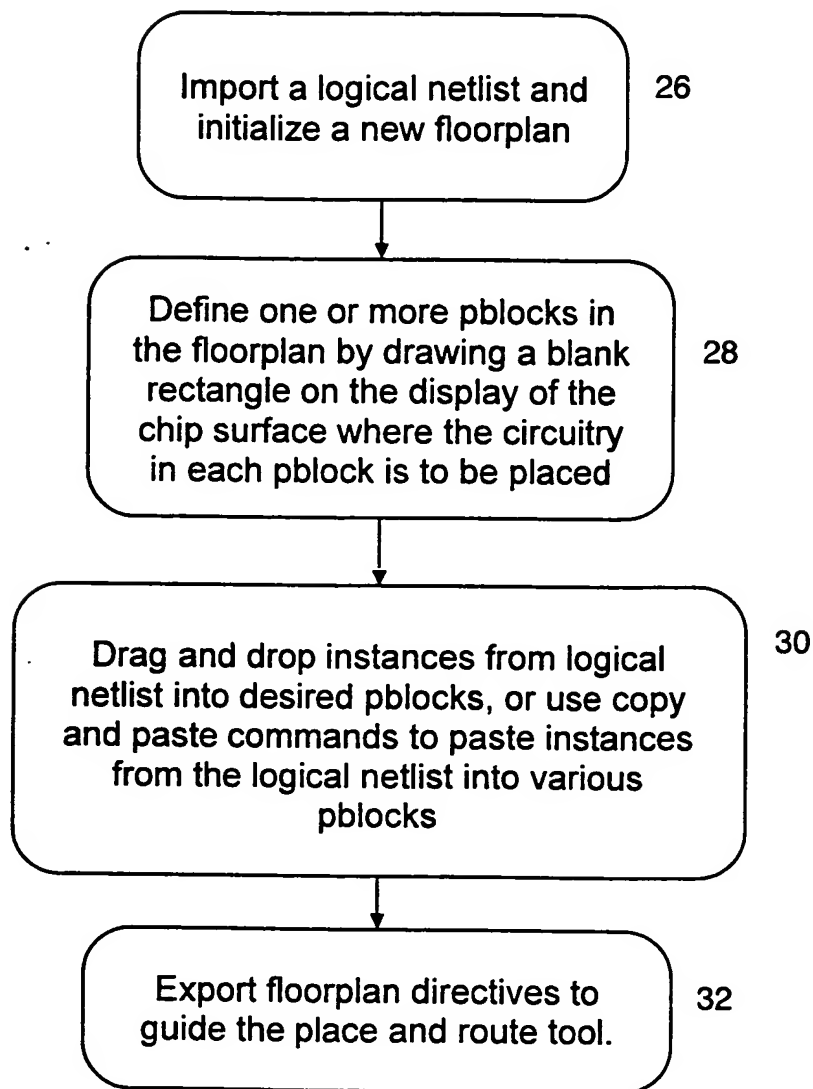


FIG. 3

PTREE UPDATE PROCESS

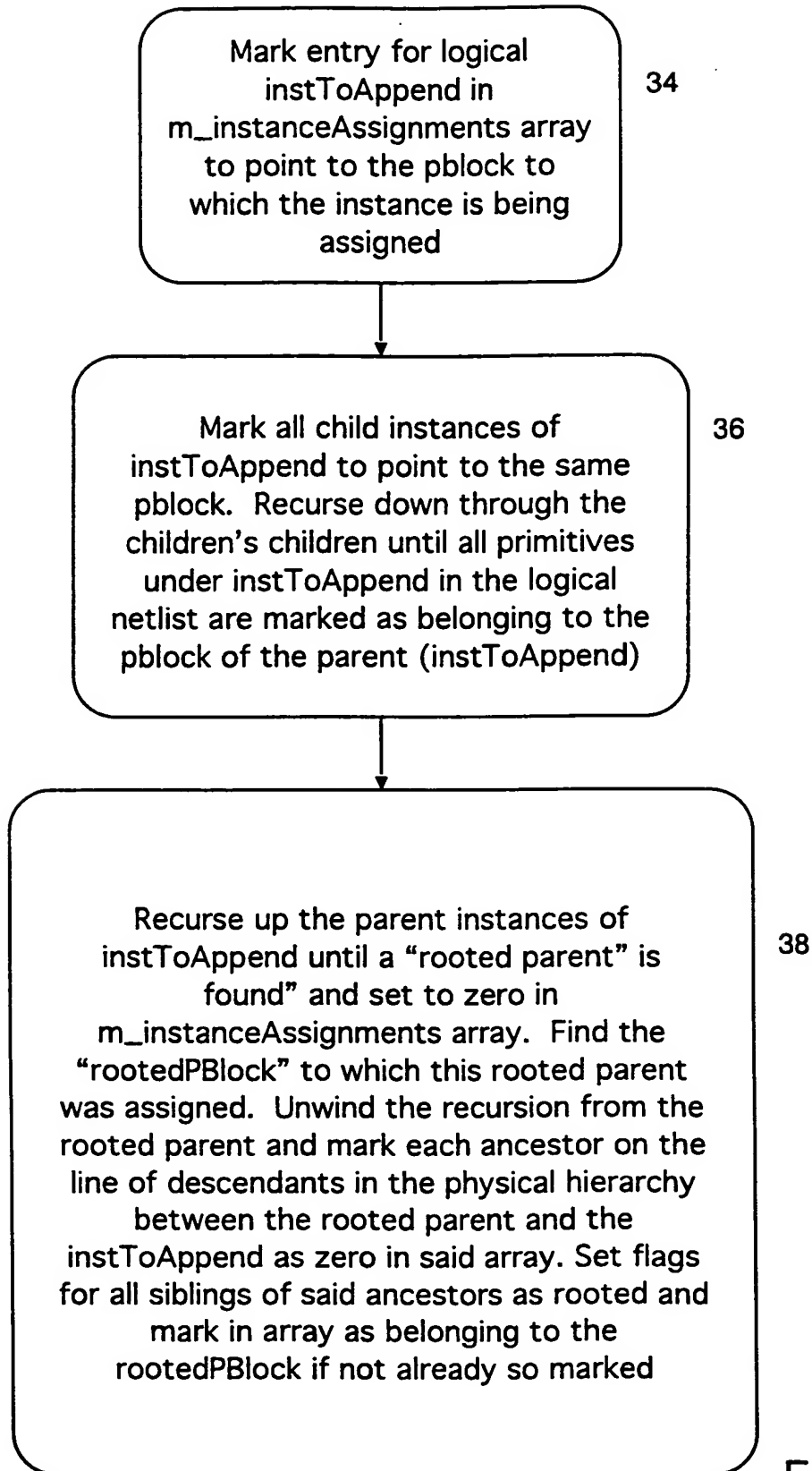


FIG. 4A

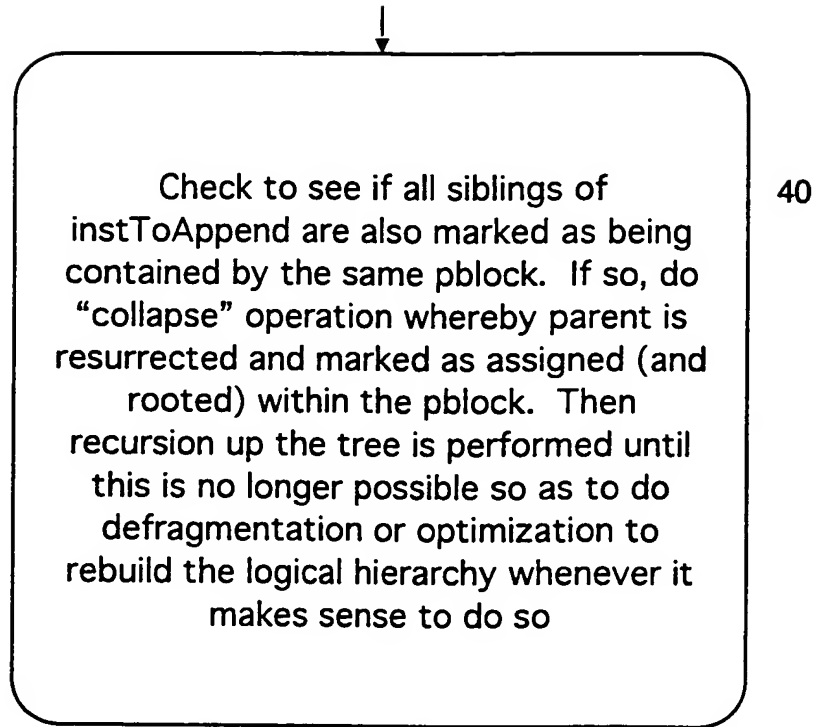


FIG. 4B

PNETWORK UPDATE PROCESS

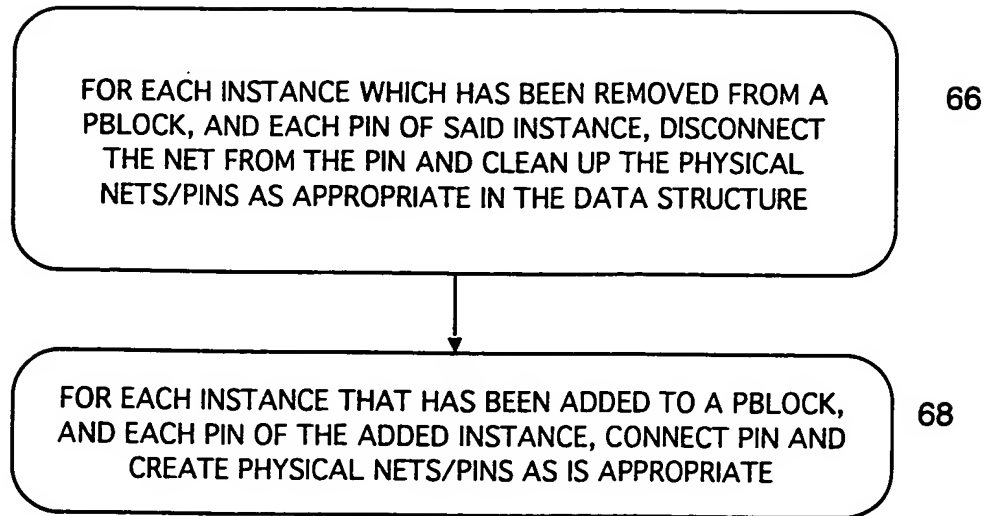


FIG. 6

PNETWORK UPDATE CONNECT PROCESS

From PTree
Update: List
of instances that
have been moved

71

PERFORM A ROOT LEVEL TRAVERSAL OF THE ORIGINAL LOGICAL NETLIST TO LEARN THE NETS THAT ARE COUPLED TO THE INSTANCE(S) MOVED OUT OF A PBLOCK. ALL NETS THAT CROSS PBLOCK BOUNDARIES AS WELL AS THOSE WHICH DO NOT ARE LEARNED

70

CREATE A MAP FOR ALL PHYSICAL NETS AND PINS THAT ALREADY EXIST AND WHICH WERE NOT REMOVED DURING THE DISCONNECT PROCESS. THEN REMAINING PINS OF INSTANCES THAT WERE MOVED THAT ARE NO LONGER CONNECTED TO PHYSICAL NETS FOR PURPOSES OF DETERMINING WHICH NETS NEED TO BE RE-CREATED

72

ARE DETERMINED

RE-CREATE NETS THAT WERE REMOVED WHEN THE INSTANCE TO WHICH THEY WERE CONNECTED WAS MOVED TO ANOTHER PBLOCK. IF PINS THAT HAVE BEEN MOVED TO DIFFERENT PBLOCKS EXIST, CREATE THE PHYSICAL NETS AND PHYSICAL PINS REQUIRED TO CONNECT THESE MOVED ROOT LEVEL PINS INTO THE EXISTING NETWORK AS DESCRIBED IN THE MAP. THIS IS DONE BY USING A RECURSIVE ROUTINE TO CREATE ONE NEW PHYSICAL NET AND PHYSICAL PIN PER PHYSICAL LAYER OF HIERARCHY UNTIL EACH ROOT LEVEL PIN HAS BEEN INTEGRATED INTO THE NETWORK AND THE ORIGINAL CONNECTIVITY HAS BEEN RESTORED.

74

CHECK FOR AND RESOLVE CORNER CASES

76

TRAVERSE THE MAP ONE LAST TIME AND SET THE TERM TYPE (INPUT OR OUTPUT) FOR EACH PHYSICAL PIN

78

FIG. 7

THE DISCONNECT PROCESS OF PNETWORK UPDATE

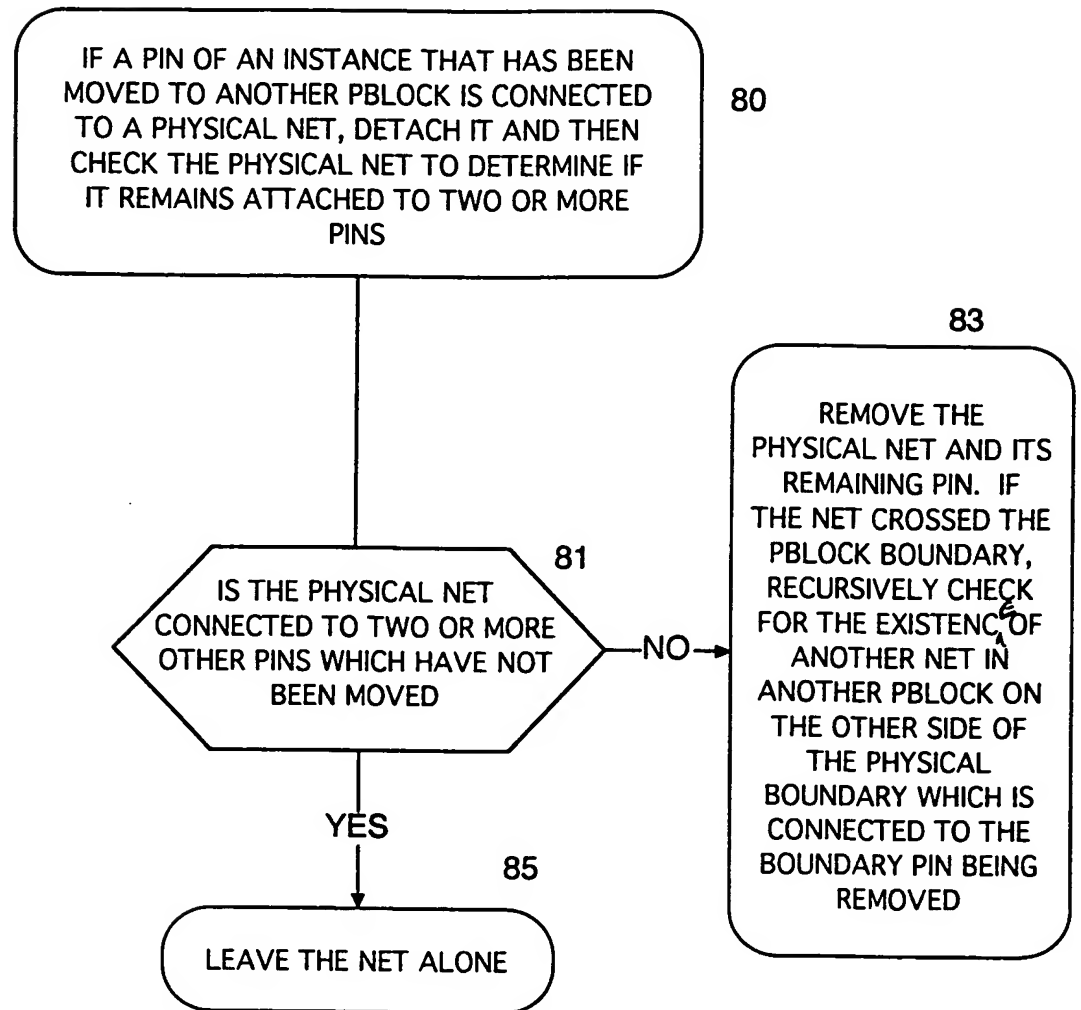


FIG. 8

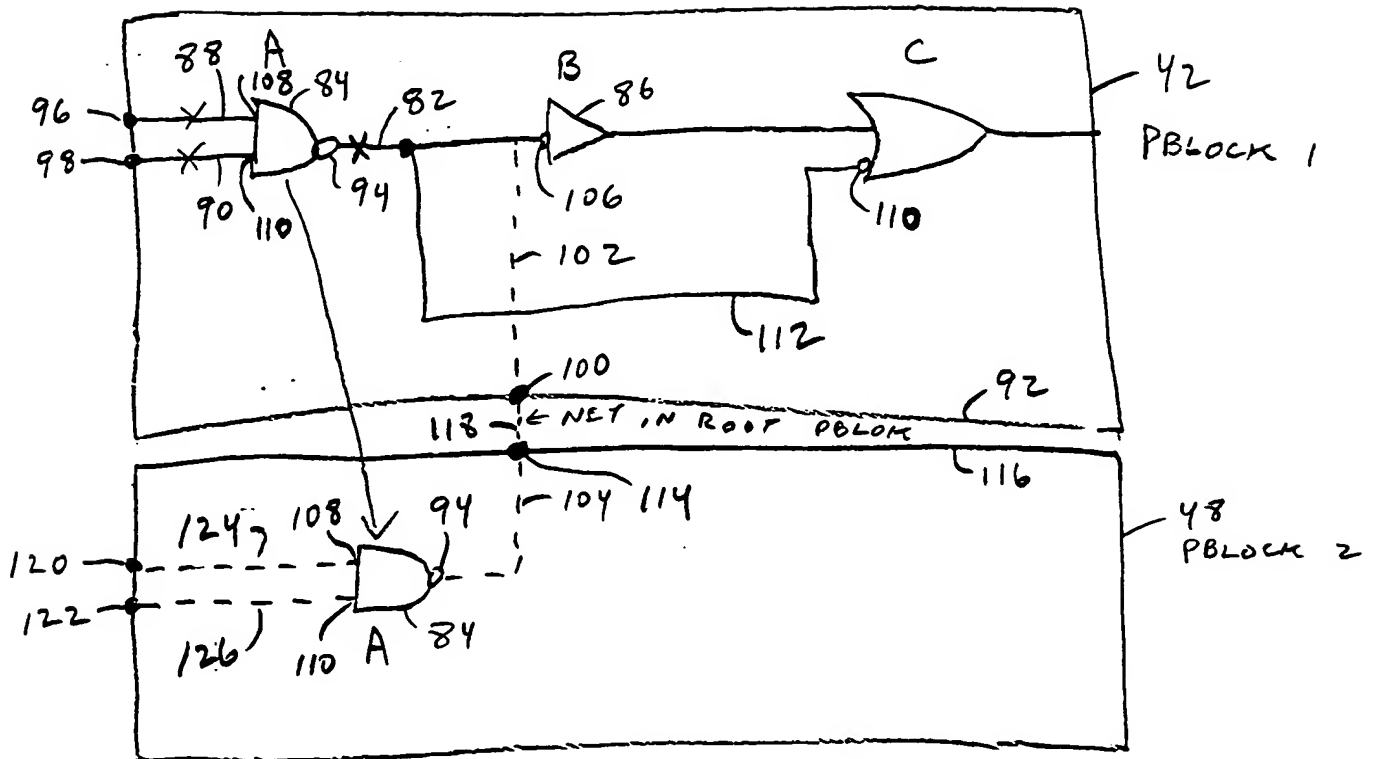


FIG. 9

ALTERNATIVE EMBODIMENT OF THE DISCONNECT PROCESS OF PNETWORK UPDATE

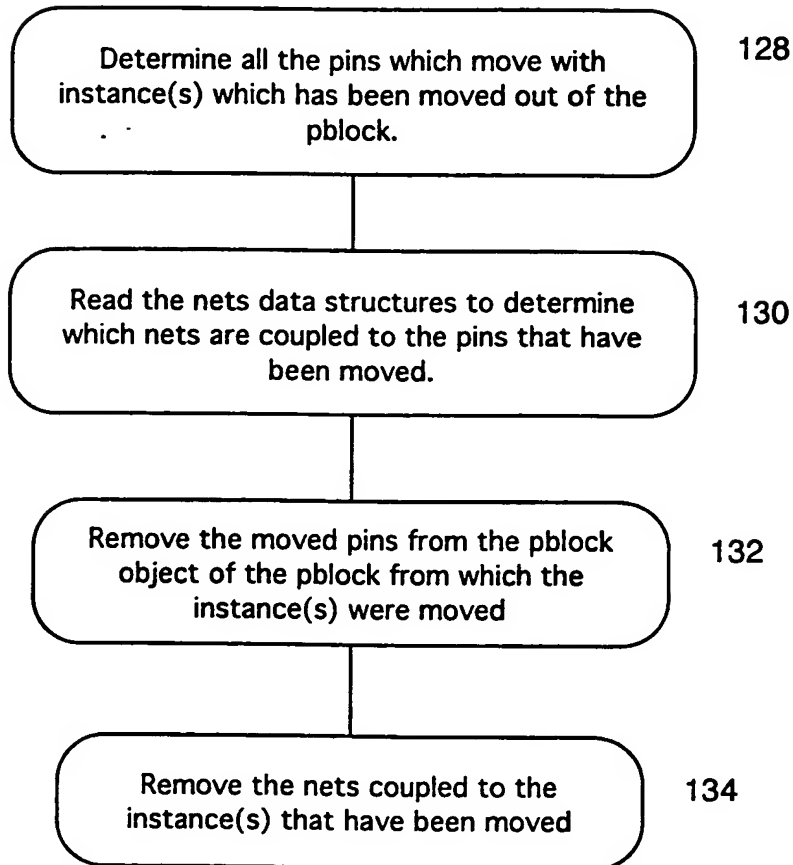


FIG. 10

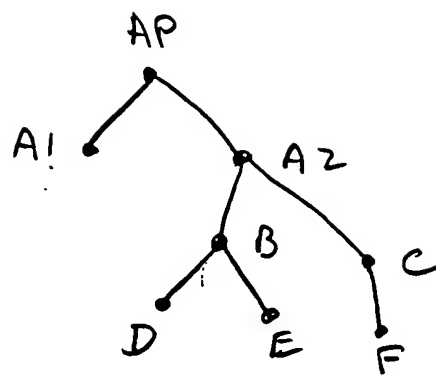


FIG. 11

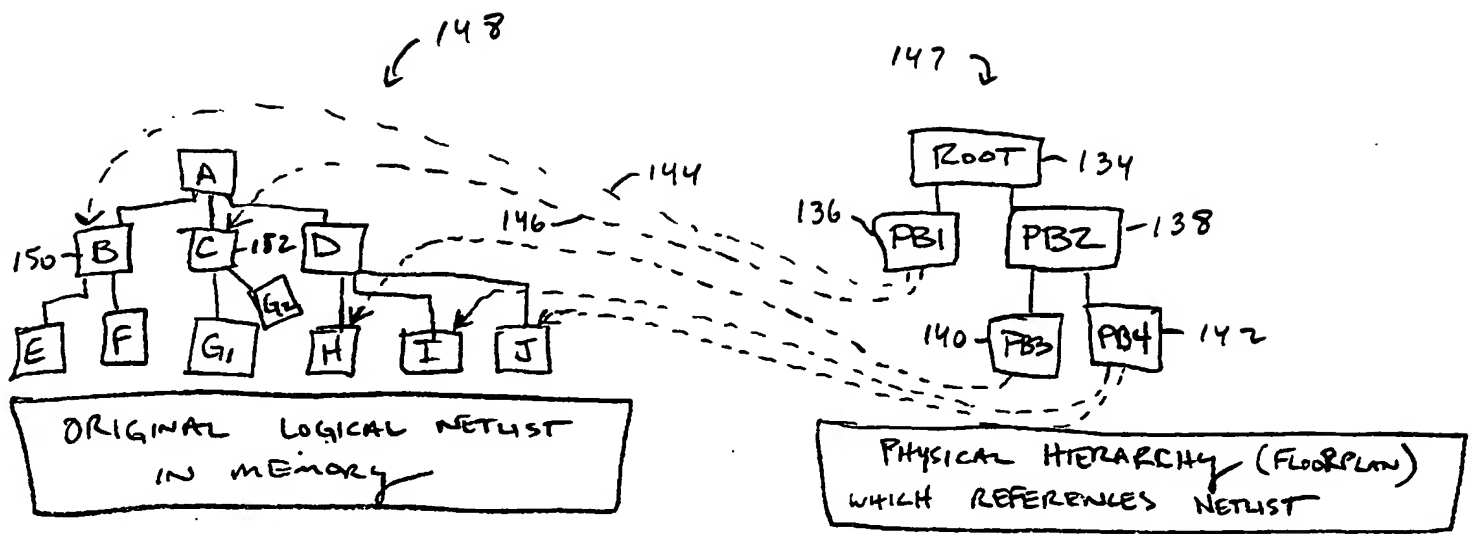


FIG. 12

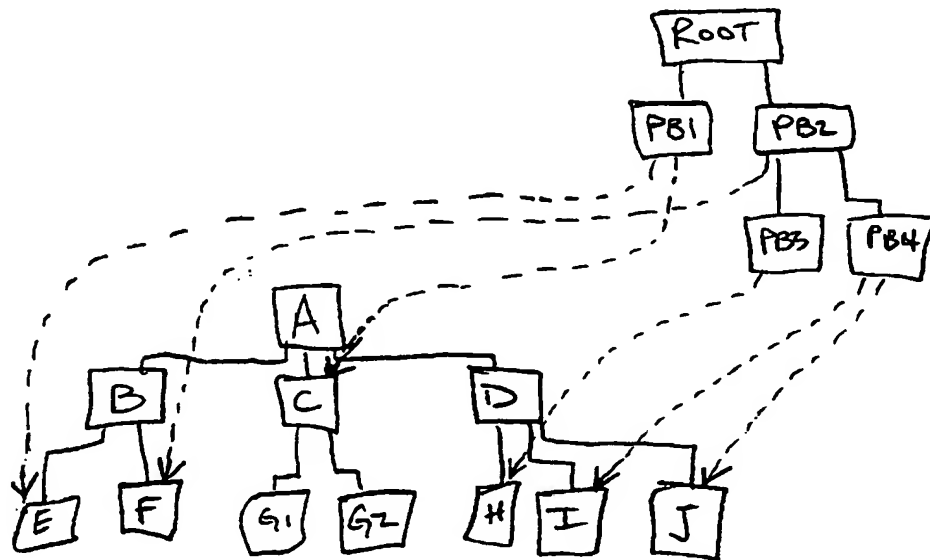


FIG. 13

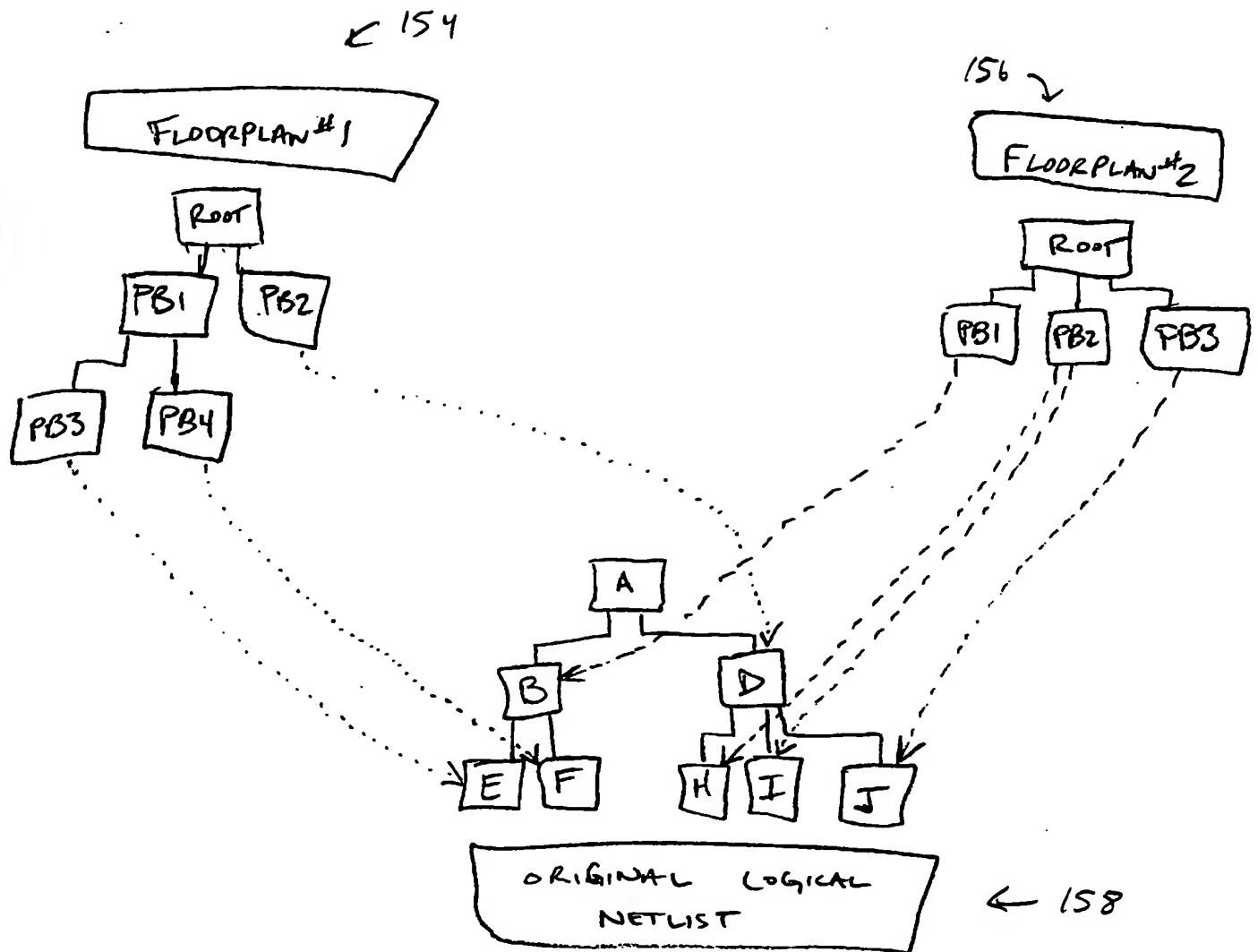


FIG. 14

PROCESS TO DISCONNECT AND RECONNECT AN ENTIRE PBLOCK WHEN IT IS MOVED OUT OF ONE PARENT PBLOCK AND INTO ANOTHER

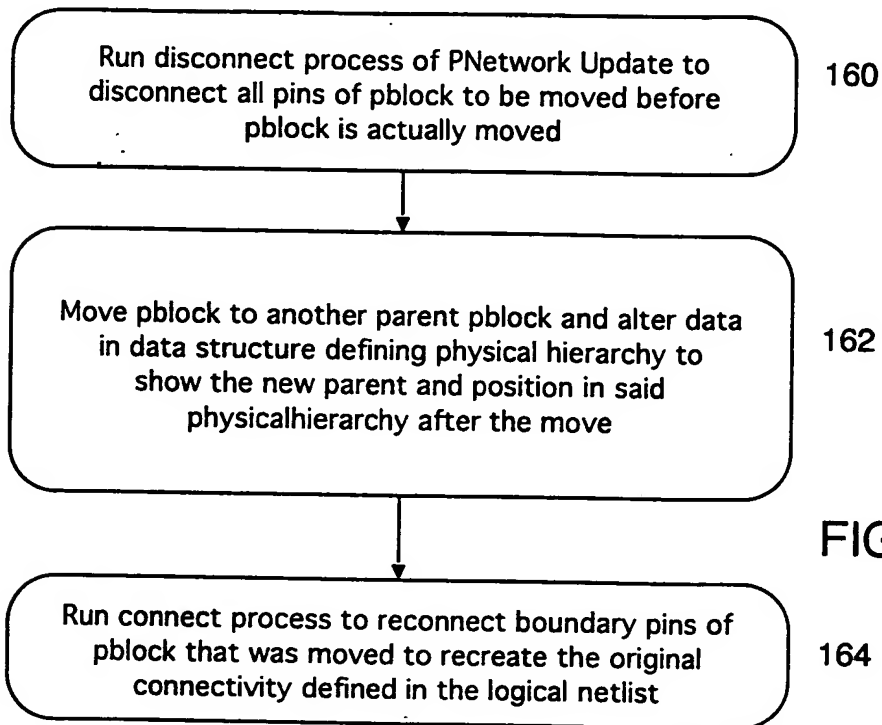


FIG. 15

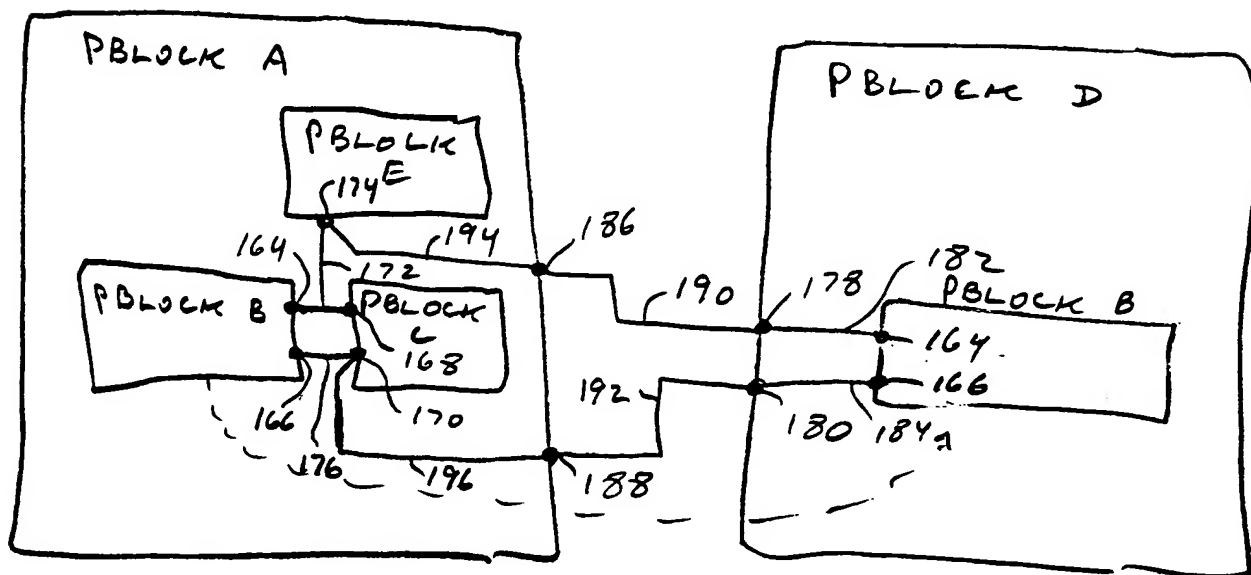


FIG. 16